



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/816,510	04/01/2004	Evelyn N. Drake	2003UR021	8615

7590 08/25/2006

J.PAUL PLUMMER  
EXXONMOBIL UPSTREAM RESEARCH COMPANY  
P.O. BOX 2189  
(CORP-URC-SW337)  
HOUSTON, TX 77252-2189

EXAMINER

HUGHES, SCOTT A

ART UNIT

PAPER NUMBER

3663

DATE MAILED: 08/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/816,510	Applicant(s) DRAKE ET AL.	
	Examiner Scott A. Hughes	Art Unit 3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE **3** MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 2/17/20006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 17,18 and 20-42 is/are pending in the application.
- 4a) Of the above claim(s) 17,18,23,27 and 34-42 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 21,22,24-26 and 28-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>7/6/2004</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election with traverse of claims 21-42 and select species, with claims 21-22, 24-26 and 28-33 readable on the elected species, in the reply filed on 6/5/2006 is acknowledged. The traversal is on the ground(s) that some of the claims are generic to certain elected species. Applicant's statements that certain claims are generic to certain species restriction requirements are acknowledged. Although some of the claims may be generic to certain of the species, no claims are generic to all species. Independent claim 21 is not generic to all claims because it contains separate species within the claim limitations (bubble coalescence retardation properties, wetting agent properties, or both). Since all claims depend from claim 21, no claims are generic to all species.

The requirement is still deemed proper and is therefore made FINAL.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 21-22, 24-26, and 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Behrens (5959938) in view of Zahradnik (Chemical Engineering Science, 1999).

With regard to claim 21, Behrens discloses a method for increasing the rise time of air bubbles emitted from a diffuser in water for the purpose of suppressing noise in a marine seismic survey (abstract; Column 1, Line 60 to Column 2, Line 16; Column 3, Line 45 to Column 4, Line 65; Columns 6-7). Behrens discloses adjusting the apertures that release the bubbles and other variables in order to change the size and concentration of the bubbles, but does not disclose introducing into the diffuser a chemical additive having bubble coalescence retardation properties. Zahradnik teaches that surface active additives are used to hinder bubble coalescence in order to influence bubble size (abstract; Introduction). It would have been obvious to modify Behrens to include using a surface active additive that has bubble coalescence retardation properties as taught by Zahradnik with the bubble diffuser in order to influence the size of the bubbles so that aperture size and orientation do not need to be continuously controlled to obtain certain bubble sizes.

With regard to claim 22, Behrens does not disclose that a chemical additive is coated on the diffuser before use. Zahradnik teaches that the diffuser is placed into the solution before use (Fig. 1) (Page 4758), and therefore the solution of surface active substances would coat the diffuser before use. It would have been obvious to modify Behrens to include coating the diffuser with surface active additive that has bubble coalescence retardation properties as taught by Zahradnik with the bubble diffuser in order to influence the size of the bubbles so that aperture size and orientation do not need to be continuously controlled to obtain certain bubble sizes.

With regard to claim 24, Behrens discloses adjusting the apertures that release the bubbles and other variables in order to change the size and concentration of the bubbles, but does not disclose introducing into the diffuser a chemical additive having bubble coalescence retardation properties. Zahradnik teaches that surface active additives are used to used to hinder bubble coalescence in order to influence bubble size (abstract; Introduction). It would have been obvious to modify Behrens to include using a surface active additive that has bubble coalescence retardation properties as taught by Zahradnik with the bubble diffuser in order to influence the size of the bubbles so that aperture size and orientation do not need to be continuously controlled to obtain certain bubble sizes.

With regard to claim 25, Behrens discloses that the diffuser is a perforated hose (Fig. 3) (Column 3, Lines 45-67).

With regard to claim 26, Behrens discloses that the perforated hose is made from a polymeric material (rubber) (Column 2, Lines 55-65).

With regard to claims 28-30, Behrens discloses preconditioning the hose by soaking it in water (Column 23, Lines 55-68). Behrens discloses that the house expands in the salt water and that the house has apertures that allow it to produce bubbles while in the water, and therefore it soaked before use in some surveys.

Claims 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Behrens (5959938) in view of Zahradnik (Chemical Engineering Science, 1999) as

applied to claims 21-22, 24-25, 26, and 28-30 above and further in view of Cosentino (5863501).

With regard to claims 31-33, Behrens and Zahradnik do not disclose that the chemical additive is a poly block copolymer composed of ethylene oxide and propylene oxide in the form of Pluronic L81. Zahradnik teaches that a surface active agent is used to control bubble coalescence properties from a diffuser, and discloses that the agent can be an ethanol or propanol, but does not disclose the use of Pluronic L81. Cosentino teaches that Pluronics are a surfactant that can be used for bubble coalescence retardation (Column 8; Column 9, Lines 1-38). It would have been obvious to modify Behrens to include a Pluronic as a surfactant that affects air bubble size as taught by Zahradnik and Cosentino in order to allow for small air bubbles from the diffuser to block out higher frequency source of noise in the seismic survey.

### ***Conclusion***

The cited prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott A. Hughes whose telephone number is 571-272-6983. The examiner can normally be reached on M-F 9:00am to 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on (571) 272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
SAH

  
JACK KEITH  
SUPERVISORY PATENT EXAMINER